JANUARY, 1911.

ENTOMOLOGICAL NEWS

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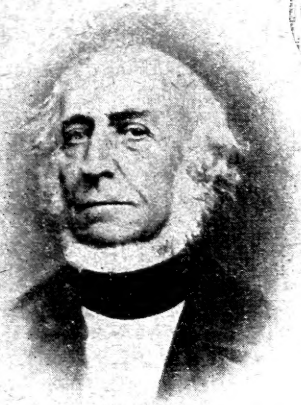

Major John Eatton Le Conte, 1784-1860.

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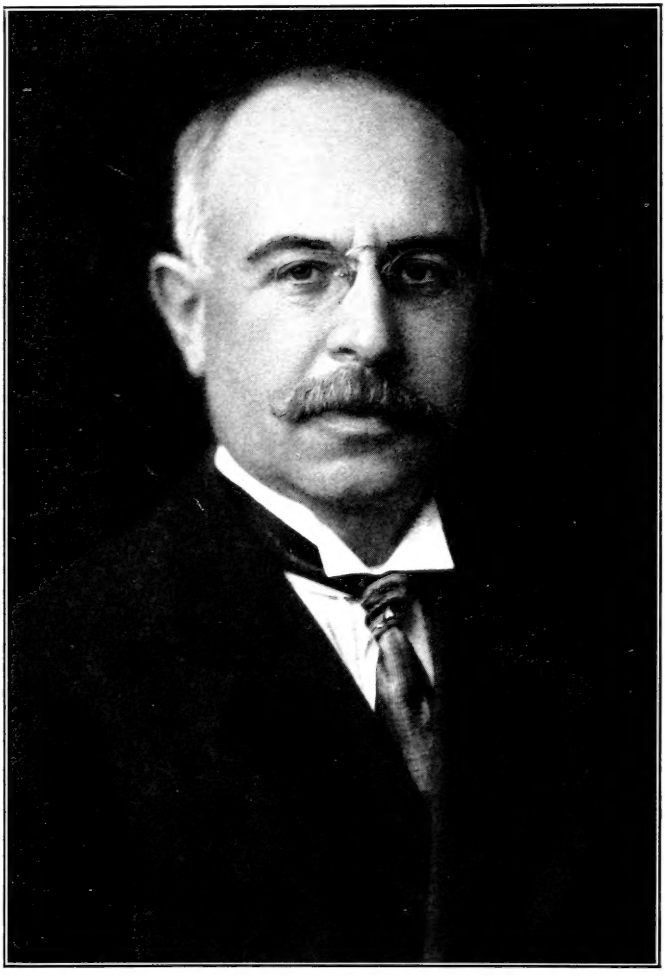

HENRY SKINNER, M.D., EDITOR EMERITUS. 1910.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XXI. JANUARY, 1911. NO. 1.

CONTENTS:

Editorial Changes.

(Plate I)

On the thirteenth of October, nineteen hundred and ten, the Chairman of the joint Publication Committee of the Entomological Section of the Academy of Natural Sciences of Philadelphia and of the American Entomological Society, having in charge ENTOMOLOGICAL NEWS, received the following letter:

"Philadelphia, Oct. 12th, 1910.

"MR. E. T. CRESSON,

"Chairman Publication Committee.

"DEAR MR. CRESSON:

"I hereby tender my resignation as editor of ENTOMOLOGICAL NEWS to take effect December fifteenth, 1910. At that time, if I am alive, I will have served twenty-one years as editor of the journal, and the NEWS may be considered to be of age and over the nursing period. I will still have a warm interest in its welfare, and will do what I can to make its future a success. I suggest that you call a meeting of your Committee in the near future for the purpose of selecting an editor and an associate editor.

"Very sincerely,

"HENRY SKINNER."

The Committees held a meeting on October twenty-seventh and, knowing that it had been Doctor Skinner's intention for many months past to lay down his editorship, accepted his resignation, and elected him Editor Emeritus. Dr. Philip P. Calvert, associate editor since January, 1893, was chosen editor and Mr. E. T. Cresson, Jr., associate editor. To the vacancy created in the Advisory Committee by Mr. Cresson's election as associate editor, Mr. Erich Daecke was chosen.

The new editors think that they may fittingly present to their subscribers and readers at this time a portrait and brief sketch of the Editor Emeritus to whom this journal is chiefly indebted for its past life.

Henry Skinner was born in Philadelphia, March 27, 1861. He studied in the college and medical school of the University of Pennsylvania, receiving his M.D. degree in 1884. He engaged in the practice of medicine until 1901, when he devoted his whole time to entomology, becoming in that year an assistant to the Curators of the Academy of Natural Sciences, in charge of the Entomological department of that institution. Previously, from December, 1889, on, as Curator of the American Entomological Society and Custodian of the Entomological Section of the Academy, he had given only a part of his time to the care of the collections of insects.

ENTOMOLOGICAL NEWS was begun with the number for January, 1890, with Eugene M. Aaron as editor and an Advisory Committee consisting of Messrs. George H. Horn, M.D., Ezra T. Cresson, Henry Skinner, M.D., and Philip P. Calvert. With the number for March, 1890, Dr. Skinner began his editorial connection with this journal which he has now loosened, but not severed. Volume I of the NEWS comprised 168 pages and no plates; Volume XXI, 484 pages and 14 plates, an increase for which we thank our numerous friends and supporters of the past score of years.

May they continue to give us the support which they have given to our Editor Emeritus. May he enjoy many years of health and strength and the happiness of seeing his "nursling" grow and prosper!

A New Hesperid.

By KARL R. COOLIDGE and VICTOR L. CLEMENCE.

Achalarus pseudocellus, spec. nov.

♂, Upper surface of primaries, brownish-black, somewhat lighter along the external margin, and sparsely dusted with whitish atoms; a macular band extending from costa across end of cell and abruptly terminating about 2.5 mm. from lower angle; this band is divided by the nervules into five spots as follows: first, quadrate; second, elongate; third, with the nervules, y-shaped, and projecting outwardly; fourth, quadrate; and the fifth, triangular; the formation of this band is similar to that of *cellus* and is quite regular, the fifth spot, however, varying considerably in size and shape; color of first spot, pure yellow; the second, orange, slightly tinted with yellow anteriorly; the others all orange; midway between this band and the apex a small procurved whitish-yellow bar; otherwise immaculate. Secondaries concolorous with primaries, immaculate. Fringes of primaries at lower angle whitish, becoming black checkered as they approach the apex, where there is usually a distinct whitish patch of fringes. Fringes of secondaries checkered black and gray. Primaries beneath with spots reproduced; color as above but considerably lighter along outer margin and dusted sparsely with grayish scales; inner angle clouded with buff; in some specimens a distinct whitish point below bar of costa, and in others another similar point immediately outward of end of costal bar; one or both of these may reappear faintly on the upper surface. Secondaries beneath brownish; two irregular, wavy dark brown bands, heavier than the ground color; between these bands and along the outer margins the coloration is pallid; scattered gray scales, heavier at anal angle than elsewhere. Fringes of primaries beneath as above; on secondaries the fringes are brownish, the whitish of above being greatly diminished. Antennae brown, with a white color at base of club; beneath whitish-yellow; thorax and abdomen dark brown; palpi yellowish-gray.

Expanse.—1.30 to 1.50 inch.

♀.—We do not discover any essential differences in the female, either as to size or ornamentation.

Type Loc.—Ramsey Canon, Huachuca Mountains, Cochise County, Arizona. 5,000—7,000 feet altitude.

Described from 2 ♂ ♂ and 2 ♀ ♀ types in the collections of Coolidge and Clemence, and from 67 co-types, five of these in the collection of Dr. Barnes.

Our first specimens of *pseudocellus* were taken on June 7th, and from then on until July 10th it was on the wing in abundance. *Cellus* first appeared about the middle of June, but was not plentiful until July. We at once noted that there were two distinct species, and upon careful examination we found very striking characters. The white color at the base of the club in the new species is distinctive, and the undersides of the secondaries are not flecked with the prominent blue metallic scales of *cellus*. *Pseudocellus* is also of a considerably smaller size, although varying somewhat. The band of the primaries above in *cellus* is clear yellow, but orange in *pseudocellus*. The fringes of the upper surface of the secondaries in *cellus* are yellow, but gray in *pseudocellus*. The above differences will at once serve to distinguish the two species. Moreover, Dr. William Barnes writes us that, "We have looked over our box of *cellus*, and find that we have about one hundred of the large form and thirty or forty of the smaller. Have series of each and find they are very uniform. There is no doubt but there are two species, and I think without doubt the larger one is *cellus*, as it agrees quite well with the figure of Boisduval and Leconte, and we can go no further as there is no description."

Dr. J. McDunnough has very kindly examined and drawn the genitalia of both species, and we find them to be obviously different. We shall deal with this in a future article. He also writes that a specimen of *pseudocellus* in the Barnes collection bears the label, "W. Va.," while all the others are from Arizona. It is rather astonishing that such a striking species should so long have escaped notice.

Messrs. E. A. Schwarz and August Busck, of the Bureau of Entomology, U. S. Department of Agriculture, will leave for Panama in January to search for parasites of the citrus white fly (Aleyrodes citri) and the cotton boll weevil and allied species, and to make a study of the entomological fauna of the canal zone.

Orthoptera found about Aweme, Manitoba.

James A. G. Rehn and Morgan Hebard.

During the season of 1909 the following series of Orthoptera was taken by Mr. Norman Criddle, and is now in the collection of the junior author, with the exception of sets from the larger series, which are in the collection of The Academy of Natural Sciences of Philadelphia. A collection was also made by Mr. Criddle for Dr. E. M. Walker, and the records have been published in the Canadian Entomologist, Volume XLII, Nos. 8, 9, 10 and 11.

Dr. Walker records the following species from Aweme, which are not in our series:—*Labia minor* (L.), *Tetrix ornatus* (Say) *Cordillacris cinerea* (Brun.), *Philobostroma quadrimaculatum* (Thom.), *Encoptolophus parvus* Sc., *Camnula pellucida* (Sc.), *Hippiscus neglectus* (Thom.), *Scudderia curvicauda* (DeG.), *Idionotus brevipes* Caud., *Udeopsylla nigra* Sc., and *Oecanthus nigricornis quadripunctatus* Beut.

The species in our series not before recorded from Aweme are as follows: *Akentetus unicolor* McN., *Mecostethus lineatus* (Sc.), *Melanoplus femur-rubrum* (DeG.), *Melanoplus packardii* Sc., *Melanoplus luridus* Dodge, *Melanoplus bivittatus* (Say), *Conocephalus saltans* Sc. Of these *Melanoplus luridus* Dodge is recorded from Western Canada for the first time; *Akentetus unicolor* McN. and *Melanoplus packardii* Sc. are first records for Manitoba.

The notes on habitat have been supplied by Mr. Criddle.

Acrydium granulatum Kirby.

June 3; 2 ♂.

Acrydium acadicum (Sc.)

June 2, 3, 4; 2 ♂, 5 ♀. 3 in dry woodland, 1 in damp open woods.

Acrydium hancocki (Morse).

June 2, 4; 2 ♀. 1 damp open woods; 1 in dry woodland.

Akentetus unicolor McNeill.

Aug. 22; 1 ♀. On dry prairie. This species has formerly

been recorded from but one Canadian locality, Walsh, Saskatchewan. There is no trace of rudimentary accessory lateral carinae of the pronotum.

Amphitornus coloradus (Thom.)

Aug. 22; 1 ♂, 7 ♀. Grass prairie land.

Chloealtis abdominalis (Thom.)

July 29; 1 ♂; Aug. 3; 1 ♂; Sept. 15, 29; 1 ♂, 3 ♀. One specimen was taken in meadowland, the rest from the prairie. This species appears late in the season; July 29 is the earliest date among numerous records given by Dr. Walker for the capture of an adult. The junior author also found that at Pequaming, Michigan, the species did not appear until August.

Chorthippus curtipennis (Harr.)

Aug. 3, 9, 18, 21, 27, 29; 16 ♂, 10 ♀; Sept. 25; 5 ♂, 7 ♀. The series was taken in meadowlands. 3 ♂ and 6 ♀ only, have long wings; but two specimens have the lateral lobes of the pronotum distinctly green.

Gomphocerus clavatus Thom.

June 29; 1 ♂; July 10; 1 ♂, 1 ♀; Aug. 3, 22, 25; 1 ♂, 5 ♀. Four specimens were taken in damp meadowlands, the rest on the dry prairie.

Stirapleura decussata Sc.

June 7, 9; 3 ♂, 3 ♀; July 9, 21, 29; 1 ♂, 7 ♀. The specimens were taken on dry sandy land and on a dry hillside.

Ageneotettix deorum Sc.

Syn.—*A. scudderi* (Brun.)

Aug. 22; 4 ♂. Taken on the dry prairie. The *Eremnus scudderi,* recorded by Dr. Walker, is based solely on McNeill's combination of these names. The genus *Eremnus,* as later shown by McNeill, is invalid and must be replaced by *Ageneotettix.*

Mecostethus lineatus (Sc.)

Aug. 30; 1 ♂. Meadow. This is the first definite Canadian record for this species.

Mecostethus gracilis (Sc.)

Aug. 9, 18, 19, 30; 7 ♂. Damp meadowland.

Arphia frigida (Sc.)

May 16, 1 ♀; June 2, 3, 4, 7, 9, 19, 21, 23, 24, 25, 29; 20 ♂, 19 ♀; July 1, 29; 3 ♂, 2 ♀. As in Dr. Walker's series from Saskatchewan, these specimens exhibit a great variability in the color of the wings. The great majority of the specimens are yellow-winged; one specimen has wings of quite as deep a shade of red as *A. pseudonietana,* while specimens having wings of a color intermediate between these two types number quite a few. The yellow sutural stripe of the tegmina is present in but two specimens.

Arphia pseudonietana (Thom.)

Aug. 13, 18, 27, 30; 5 ♂, 3 ♀. Sept. 6, 30; 2 ♂, 1 ♀. All taken on the prairie.

Hippiscus tuberculatus (Pal. de B.)

May 26, 1 ♂; June 3, 5, 9, 10, 19, 21, 23; 9 ♂, 5 ♀. Labelled: damp meadow, near woods, dry land, open meadow in woods.

Hippiscus maculatus Sc.

June 2, 9, 19, 23; 7 ♂, 5 ♀. Labelled: dry prairie, dry sandy hill, dry sandy land. All the specimens before us have the disc of the wing very pale lemon yellow, with the exception of one male which has that part of the wing colored pale salmon pink. With the small amount of material at hand we are unable to decide the validity of the several closely allied species: *Hippiscus maculatus, tigrinus, latifasciatus* and *zapotecus* (?). The series before us belongs assuredly to but one species; we have used the name *"maculatus"* as the specimens agree with the description of that species, and of the species above mentioned this name has priority of date. As Dr. Walker has mentioned in his recent paper, Scudder's characters for this genus are almost wholly useless, and, in consequence, it probably contains numerous synonyms.

Dissosteira carolina (Linn.)

July 30, 2 ♂, 1 ♀. All taken on a sand bank.

Spharagemon collare (Sc.)

Aug. 18, 27, 30; 11 ♂, 10 ♀; Sept. 6, 1 ♂; Oct. 1, 2 ♂. Few of this series have the collar of the pronotum marked lighter than the general color of the insect. All taken on the prairie, many in sandy situations.

Spharagemon bolli Sc.

July 26, 1 ♂; Aug. 19, 1 ♀. Both specimens captured on the prairie.

Mestobregma kiowa Thom.

July 26, 29; 12 ♂, 5 ♀; Aug. 3, 26; 1 ♂, 1 ♀. All taken on dry hillsides and prairie land.

Trimerotropis agrestis McN.

Aug. 22; 17 ♂, 8 ♀. All taken in drifting sand.

Circotettix undulatus Thom.

July 25, 26; 2 ♂, 3 ♀; Treesbank, Manitoba. The specimens were taken on a sand beach.

Melanoplus atlanis Riley.

July 10, 13, 14, 15, 16, 24; 10 ♂, 9 ♀: Aug. 11, 14, 18; 5 ♂, 3 ♀: Sep. 15, 16, 18, 25; 4 ♂, 1 ♀: Oct. 1; 2 ♀. All but six specimens of this series of thirty-four, have the caudal tibiae colored pale glaucous. Taken in dry fields, cultivated land, low lands and on the sandy prairie.

Melanoplus dawsoni (Sc.)

Aug. 3; 1 ♀: Sep. 15, 29; 3 ♂, 1 ♀: Oct. 1; 3 ♂, 2 ♀. The series was captured on the dry prairie, on the edge of wet land and in meadowlands. All are brachypterous.

Melanoplus gladstoni Sc.

Aug. 15, 21, 22, 23; 6 ♂, 3 ♀: Sep. 15, 16, 18, 25, 29; 3 ♂, 6 ♀: Oct. 1, 2, 3; 3 ♂, 3 ♀. Almost the entire series was captured on the prairie. A very few specimens were taken in the dry scrub and in damp meadow lands.

Melanoplus femur-rubrum (DeG.)

Aug. 30; 1 ♀. In meadow.

Melanoplus extremus (Walk.)

July 1; 1 ♀. In damp meadow. In this individual the tegmina extend to the base of the genicular arch.

Melanoplus angustipennis (Dodge).

July 14, 15, 19; 4 ♂, 1 ♀ : Aug. 15; 4 ♂, 2 ♀ : Sep. 8, 16; 2 ♂, 2 ♀ : Oct. 1, 6; 8 ♂, 1 ♀. Captured in the following localities: dry field, dry edge of bush, low open bush, prairie, damp meadow, edge of wood. The low bush land seems to be the favorite habitat of this species. All the specimens in this series have red tibiae.

Melanoplus packardii Sc.

July 14, 15; 4 ♂, 9 ♀. All taken in a dry field.

Melanoplus minor (Sc.)

June 22, 23: 1 ♂, 1 ♀. The male was captured on dry land, the female in a damp meadow.

Melanoplus luridus (Dodge).

Aug. 3, 15, 30; 2 ♂, 1 ♀ : Sep. 16; 1 ♀. Taken in low open bush, dry field and dry sandy land.

Melanoplus bivittatus (Say).

July 14, 15; 2 ♂, 1 ♀ : Aug. 19, 30; 5 ♂ : Oct. 1, 6; 4 ♂. This series was captured in meadowlands and cultivated areas.

Scudderia pistillata Brunn.

Aug. 8, 9, 11, 14, 18, 19, 21, 22, 23, 27; 11 ♂, 5 ♀. Labelled; in meadowland, in high weeds in meadow, among sandy hills, in dry bushy land; the last situation being apparently preferred by this species.

Conocephalus fasciatus (DeG.)

Aug. 21, 22; 1 ♂, 8 ♀, 1 nymph. All taken in meadowland.

Conocephalus saltans (Sc.)

Aug. 3; 1 ♂, 1 ♀. Taken on the prairie.

Anabrus simplex Hald.

July 18, 23; 4 ♂. Captured on the prairie.

Gryllus pennsylvanicus form **neglectus** Sc.

June 21; 3 ♂, 2 ♀ : Sep. 12, 13, 22, 23; 5 ♂, 2 ♀.

♀	Caudal Femur.	Ovipositor.
June 21	9.5 mm.	11
June 21	9.5 mm.	11
Sep. 12	9.5 mm.	16.5
Sep. 23	10 mm.	17

Nemobius fasciatus form **abortivus** Caud.

Sep. 22; 4 ♂ : Oct. 5, 6; 3 ♀. The series was collected in meadowlands.

Length, elytra, male, 4 to 4.5 mm., female 3 to 5 mm., posterior femora, male 4.5 to 5 mm., female 5.2-6 mm., ovipositor, 5 to 8 mm. Two of the females have short rounded tegmina, these two have ovipositors 5 and 7 mm. in length.

A New Lestodiplosis.

By E. P. Felt, Albany, N. Y.

The species described below was reared by Mr. C. H. T. Townsend of Piura, Peru, from *Hemichionaspis minor* Maskell, and submitted to the author for determination through Dr. L. O. Howard, Chief of the Federal Bureau of Entomology.

Lestodiplosis peruviana n. sp.

Male.—Length, 1 mm. Antennae twice the length of the body, rather thickly haired, yellowish, the basal nodes of the flagellate segments slightly fuscous; fourteen segments, the fifth having the two portions of the stem, each with a length about three and one-half times the diameter, the basal enlargement subglobose, with a sparse sub-basal whorl of long, stout setae and a well developed circumfilum, the loops of the latter extending nearly to the base of the distal enlargement, which latter is pyriform, has a length one-half greater than its diameter, a sparse whorl of long, stout setae and basal circumfilum with rather short loops; the distal node with loops reaching nearly to the apex of the segment; terminal segment having the basal portion of the stem with a length six times its diameter, the distal enlargement subcylindric with a length three times its diameter and narrowly rounded apically. Palpi; first segment probably quadrate, the second rectangular, with a length over twice its diameter, the third as long as the second, more slender, the fourth one-half longer than the third, more slender. Face probably yellowish. Mesonotum pre-

sumably light brown, the submedian lines sparsely haired. Scutellum and post-scutellum presumably yellowish. Abdomen sparsely haired, apparently yellowish, with a fuscous spot basally. Wings faintly spotted near the middle of the third vein and along the branches of the fifth; subcosta uniting with costa near the basal third, the third vein just before the apex, the fifth at the distal fourth, its branch near the basal half. Halteres yellowish, reddish orange subapically. Coxae yellowish; femora, tibiae and tarsi a variable fuscous straw; claws slender, evenly curved, simple, the pulvilli nearly as long as the claws. Genitalia; basal clasp segment long, slender, with a small, triangular lobe at the internal basal angle; terminal clasp segment somewhat swollen basally; dorsal plate long, deeply and triangularly emarginate, the lobes rounded and sparsely setose; ventral plate probably broadly rounded, setose. Other structures indistinct.

Larva.—Length, 1.5 to 2 mm.; probably yellowish orange. Head long, tapering to a narrowly rounded apex. Antennae slender, tapering and with a length nearly twice the diameter of the head; breastbone apparently wanting, ocular spot indistinct. Skin finely shagreened, the segments dorsally, each with subdorsal, sublateral and lateral setae near the anterior third, the longest having a length equal to about half the body diameter; terminal segment reduced, with a diameter about half that of the preceding segments and distally with a median, rounded process. Conical, fleshy prolegs occur on body segments 2-10.

The above descriptions were drafted from balsam mounts and the color characteristics as a consequence are hardly those of the living insect.

A Day with Euchloe cethura.

By Karl R. Coolidge.

Euchloe cethura, a butterfly confined to Southern California, is a much to be desired prize. About Pasadena we looked for it minutely, but always without success, and it seems at the present time to have disappeared. In former years, however, it was taken here in considerable numbers and is said to have been abundant at Elysian Park, between this city and Los Angeles.

Learning that it occurred quite commonly in the vicinity of San Bernardino, we decided to pay a visit there in quest

of the little beauty, and incidentally pay our respects to Mr. William Greenwood Wright, the pioneer Lepidopterist and author of the "Butterflies of the West Coast." March 6th found Pasadena wrapped in a dense fog, and for a time we feared that our prospects were very meagre. However, after an hour's ride from Pasadena, passing through mile after mile of citrus groves, we were greeted by the sun shining forth unhindered by fog or clouds. San Bernardino, with its snow capped mountains looming up behind it, was reached about ten, and we proceeded at once to F Street, where we were fortunate in finding Mr. Wright at home. Hearing we were fellow "bugologists" he greeted us with open arms and devoted himself entirely to our entertainment. Several hours was spent in looking over his valuable and extensive collections, with exception of his types which he has wisely placed in safe storage. Then, hitching up "the old hoss shay," we drove to Little Mountain, about two miles to the north of the city, accompanied by our host, who assured us we would be successful. After a hard scramble we reached the summit, and Mr. Wright, though he must be well along in the sixties, kept pace with us, giving one of the best illustrations of what the study of entomology accomplishes for her students, perfect health in old age.

In less than half an hour our first *cethura* was bagged, and before the day's hunt was over, seven more fell victims to our butterfly nets. One of the specimens taken is typical of *E. cethura deserti* which Mr. Wright, in his Butterflies of the West Coast, describes as a desert form of *cethura*. It seems, however, to be but an individual variant. Little attention was paid to other species, but occasionally a specimen reached the "Happy Flying Grounds" via the unlimited Cyanide Route. *Thecla dumetorum* was in its prime, flying in large numbers, and *T. iroides* was not uncommon. Up on the summit the little *Alypia ridingsii* gyrated about and we could have taken a large series had we so desired. Now and then the swift *Colias eurydice* whizzed by, and a stray *Papilio zoli-*

caon flew lazily about. *Thanaos juvenalis* we found abundant, and several early *Melitaea wrightii* and *M. augusta* were netted. The everywhere *P. rapae, E. sara reakirti* and others were noticed. We had an additional pleasure in having the exact type localities of *Melitaea wrightii, M. augusta* and *M. cerrita* pointed out to us.

About three o'clock our appetites got the best of us, and in a half falling-sliding manner we returned to the buggy, where cold chicken, pie, and other related species of edibles awaited us. Needless to say, we were quite as successful with these as we had been with the butterflies. Still another pleasant hour remained before our train pulled out, and we found the time all too short. Mr. Wright ceremoniously labeled the day "Cerrita Day," after *M. cerrita,* over whose type locality we had sacrilegiously tramped. The laws of nomenclature compels us, to our regret, to change the name to "Wrightii Day," perhaps more appropriate, as *cerrita* was taken in company with and appears to be but an extreme aberration of *M. leanira wrighti* Edwards.

Truly, we shall look back with pleasure to "Wrightii Day" —our first introduction to the dainty *Euchloe cethura,* and to William Greenwood Wright, one of the few men now living who had for his contemporaries and friends such men as Wm. H. Edwards, Henry Edwards, Samuel H. Scudder, Hermann Strecker, and Dr. Behr.

Euchaeria socialis—The larval nest of this interesting species, closely allied to our *Neophasia,* is put to a curious use by the Mexicans in the Sierra Madres of Sonora. The nest, being of a tough and leathery texture, is deprived of its occupants and becomes metamorphosed into an excellent tobacco pouch. Many a señor, señora and dark-eyed señorita defty roll their cigaritos from species of "My Lady Nicotine" drawn from plundered larval nests of *E. socialis.*

The Trustees of the Mass. Agric. College dedicated the new building for Entomology and Zoology Friday, Nov. 11, 1910, at Amherst, Mass.

Standards of the number of eggs laid by Insects—IX.*

Being Averages Obtained by Actual Count of the Combined Eggs from Twenty (20) Depositions or Masses.

By A. Arsène Girault.

13. Blatella germanica Linneus.

No.	Date 1910	No. counted per mass	Successive Totals	Av. per Egg Mass	Max.	Min.	Range	
1	Sep. 20	38	38	38.				
2		40	78	39				
3		40	118	39.3				
4		40	158	39 5				
5		48	206	41.2	48			
6		38	244	40.6				
7		42	286	40 8				
8		44	330	41.2				
9		38	368	40 8				
10		42	410	41.				
11		40	450	40.9				
12	Oct. 1	42	492	41.				
13		36	528	40.6				
14		38	566	40.4				
15		39	605	40.3				
16		44	649	40 5				
17		44	693	40.7				
18		34	727	40.3		34		
19		40	767	40.3				
20		44	811	40.5			14	
			811	40.5	48	34	14	Finals

The egg-capsules used here were taken from living females occurring in a kitchen of a hospital at Dunning (Chicago), Illinois, September 15, 1910; they had all been rotated. When the embryos neared perfectness they were dissected out and counted. This procedure is not necessary, however, for the outline of each egg is well defined exteriorly and their number is easily determined. As a rule there are an equal number of eggs in both sides of any single capsule, hence the even numbers shown in the table.

Wheeler (Journal of Morphology, Boston, III, 1889, p. 292) states that oviposition occurs at all times of the year. The same author (Ib., p. 301) gives the average number of eggs

* For the first eight of this series, see Ent. News, 1901, p. 305; 1904, pp. 2-3; 1905, p. 167; 1906, p. 6; 1907, p. 89; 1908, pp. 4, 383; 1909, pp. 355-357.

in a capsule (taken from 34 specimens) as being near 40 and the range from 28 to 58. "The number varies in different localities and is doubtless dependent on the food of the female insect. In several capsules obtained where amylaceous food was abundant the average was much higher than in a much greater number of capsules obtained from a place where fatty food was the only diet."

In the same place on a later page (p. 302) he again states: "Taschenberg (46) claims that the female regularly lays only one capsule and dies soon after its deposition. My observations on fifty females, whose wings were clipped as soon as they had formed their first capsule, have convinced me that they certainly lay two perfect capsules as a rule, and possibly more, in the course of the year." Wheeler is also certain that the young hatch without assistance from the female a fact easily observed by keeping egg-capsules isolated and protected from dryness. The young escape without difficulty from them.

It follows from what has been written in this connection that the total number of eggs deposited by single females of this species will have to be determined by observation on living females kept under as natural conditions as possible. The number must average at or above 80.

A New American Sitarine Beetle (Col., Lyttid.).

By Creighton Wellman, Oakland, California.

The writer recently received for determination from Professor S. J. Hunter, of the University of Kansas, a collection of Lyttidae secured last June by Mr. F. X. Williams, of the same University, in Gove County, Kansas. Among the specimens are a series found by Mr. Williams in bees' nests and which represent an interesting new species described in the following paper.

These insects belong to the genus *Hornia* Riley (hitherto known to contain but a single species) which is the only genus representative of the Sitarini yet found in the western hem-

isphere with the exception of the Old and New Mexican genus *Leonidia* Ckll. (containing two species) from which *Hornia* may be separated by the following table:

1. (2) Antennae of 10 articles, abdomen partly membranous, claws unarmed ..... **Hornia** Riley.
2. (1) Antennae of 10 articles, abdomen entirely subcorneous, claws armed with a long basal spine.....**Leonidia** Ckll.

The new *Hornia* may be characterized as follows:

Hornia gigantea n. sp.

Color, head dark castaneous with irregular ferrugineous markings on the frons and vertex, thorax black clouded with castaneous, scutellum brownish black, elytra transparently ferrugineous the sutural margins slightly infuscate, abdomen with chitinous portions colored much as head and thorax, legs black; *head* broadly triangular, back and sides with black pubescence; *labrum* transverse, somewhat excavated on its upper surface, apically broadly rounded, the free edge thickly fringed with short golden hairs a few of which are paler and subsetaceous, the lateral margins slightly raised, the punctuation finer and thicker towards the center; *clypeus* transverse, anterior border almost straight, sides and posterior border somewhat convex, punctuation rather stronger and more irregular than that of labrum; *mandibles* black, robust, rather sharply truncate; *labial palpi* with last article longer than the other two and fusiform, the extreme apex knobbed; *maxillary palpi* with first article minute, second very long, obconical, third shorter, also obconical, the last rather shorter than preceding, fusiform (slightly obconical) apex broadly and roundly truncate; *antennae* submoniliform, first article shortly subglobose, second similar but smaller, third to tenth gradually becoming more cylindrical and slenderer, last article slightly longer, apically narrowed and truncate, the joint between the tenth and eleventh articles indistinct; *eyes* small; *neck* distinct, head and thorax not closely joined; *pronotum* convex, almost subglobose, narrowed in front and behind, posterior margin everted, pubescence black and most abundant at sides; *scutellum* transverse, roundly triangular, with a few deep punctures; *elytra* irregularly and roundly triangular, ora somewhat raised but not prominent, surface irregularly rugose, with a few erect black hairs; abdomen large, as in *Meloe* L., membranous, nine dorsal and seven ventral chitinous plates obviously visible; *legs* with femora robust, sparsely pubescent, tibiae more strongly pubescent; *tarsi* small, claws slender.

Sexual characters: ♂, the punctuation of the head is sparse, fine and deep, the antennae reach to the middle of the elytra (5.5 mm. in

the type), the thorax is sparsely and finely punctured, a few coarse punctures intermixed in the center of the disk, the eyes are reniform, the scutellum small, the elytra about twice as large as in the ♀, and the front tibiae armed; ♀, the head is more coarsely sculptured, the punctures being larger, thicker and more irregular, the antennae reach not quite to the middle of the thorax (3.5 mm. in type), the thorax is very coarsely and strongly punctured, especially on the anterior portion of the disk, the eyes are longly oval, the scutellum large, the elytra much smaller and more hairy than in the ♂, and the front tibiae unarmed.

Early stages: Exuvia of third larva hairless and unarmed, nymph (almost completely transformed), ♂, much as in imago but not chitinized.

Length, ♂, 19 mm.; *width*, 6.7 mm.; ♀, length, 19 mm.; width, 7.2 mm. (types); extremes, 24x9.5 mm. ♂, 14x5.1 mm. ♀.

Geog. Dist., Gove Co., Kansas (2813 ft.), June, 1910, "parasite in the nests of *Anthophora occidentalis*," 17 specimens (*F. X. Williams*).

Types (♂, ♀, nymph, larval skin) in the collection of the University of Kansas; *cotypes*: eight in the collection of the University of Kansas, six in the writer's collection.

The variation in the size of the elytra, in the color and in the dimensions of the specimens is considerable. They may be told at a glance from the only other species in the genus (*minutipennis* Riley) by the marked difference in facies. The following table will facilitate the more exact separation of the two species:

1. (2) Light ferrugineous, head slightly wider than pronotum, which is subparallel at sides ..... **minutipennis** Riley.
2. (1) Dark castaneous, head almost a third wider than pronotum, which is markedly arcuate at sides..... **gigantea** Wellm.

The species just tabulated represent the extreme of degeneration from parasitic habits as it occurs among the Lyttidae, and Mr. Williams' discovery is most important, suggesting as it does that further careful examination of bees' nests may reveal other striking additions to our coleopterous fauna.

Professor H. F. Wickham, Professor of Entomology at the State University of Iowa at Iowa City, Iowa, wrote in November: "Although entomology is entirely elective here, I have 100 students working at it."

A new Bee from New York State

By T. D. A. Cockerell, Boulder, Colorado.

I have just received from Dr. E. P. Felt a couple of specimens of *Osmia,* collected at Karner, N. Y., June 24, 1902. Dr. Felt writes that he has reared a parasite from the species, and is anxious to know its name. It proves to be new, and may be described as follows:

Osmia felti n. sp.

♀. Length about 12-13 mm.; head and thorax strongly and closely punctured, dark blue, suffused with green, especially on supraclypeal area, front, mesothorax, scutellums and metathorax; head rather large, broad, cheeks large and swollen; clypeus normal, very densely punctured, with the lower margin black, smooth and shining, straight, without teeth or emargination; mandibles thick, tridentate; antennae black, scape punctured; no distinct malar space; hair of head and thorax above white, with a faint creamy tinge; a little fuscous hair about ocelli; hair of face white, but of clypeus largely or moderately mixed with dark fuscous; lower part of cheeks with some fuscous hair; hair of thorax nowhere mixed with dark, that of pleura, metathorax etc. all white; area of metathorax wholly dull, granular, faintly rugulose at base; tegulae shining piceous; wings strongly brownish infuscated; b. n. going basad of t. m.; legs black, not even the hind coxae metallic; middle femora swollen and obtusely angulate below; hair of hind tarsi dark fuscous; abdomen shining, rather sparsely punctured, dark steel blue, with white hair on first segment, very short thin fuscous hair on the others, and a slight fringe of minute shining hairs (not making a visible band) on the third and following segments; sides with some white hair; ventral scopa black; last dorsal segment with appressed pale yellowish hair.

In all things this is very close to *O. densa* Cresson, but *densa* has much long coarse black hair on the face and front, the dark hair of the abdomen is longer and more evident, while the shining red or pale hair so evident on the middle basitarsus of *densa* is scarcely or not developed in *felti.*

The type locality of *O. densa* is Pike's Peak, Colorado. It extends thence northwestward to Washington State. *O. felti* might be regarded as a geographical race or sub-species, but even so it would deserve recognition.

Mallophaga from Bolivian Birds.

By V. L. Kellogg and J. H. Paine, Stanford University, California.

The following determinations and descriptions of new species of *Mallophaga* refer to a small collection of specimens from Bolivian birds in 1901 by the late Perry O. Simons. (This unfortunate collector of birds for the British Museum was murdered by Indians in the Bolivian mountains in 1902 (?)

In Simons' notes the birds are listed only under Bolivian vernacular or descriptive English names, and we are unable to ascribe them with certainty to their proper species. The English names reveal at least their general sort, as duck, humming bird, eagle, etc.

Docophorus laticeps Giebel.

Several specimens from the "white-headed oriole" (Choro, Bolivia, 3500 metres, dry season).

Docophorus communis Nitzsch.

Specimens from "bird" (Choro, Bolivia).

Docophorus fissi-signatus n. sp. (Fig. 1.)

Two females from "desert curlew" (Lagonillas, Bolivia).

This species belongs to Piaget's type *fisignati* from the Spoon bills and Ibises and is the second of this type that we have found on curlews in this country.

Description of female.—Body length, 2.4 mm.; width, 1.06 mm. Signature double. Head: Length, .66 mm.; width, .68 mm.; quite dark in color except for the clypeus; signature double, somewhat lighter in color than the rest of the head except for its two posterior prolongations; margin and space between the portions of the signature transparent. Clypeus truncate; rounded on the angles, sides slightly diverging, suture distinct. The antennal bands extend over half the length of the clypeus. A prominent hair arises just forward of the termination of the antennal band and another shorter one on the margin at the termination of this band; also a short hair near the suture with another long one arising on the dorsal surface further forward; a hair arising from the ventral surface extending beyond

the lateral margin near the center. On the margin just behind the clypeal suture are three rather long hairs, a short one on the base of the trabeculae and a long one on the margin near the basal segment of the antennae. Temples broadly rounded with three long hairs and three short spines; a hair and one spine arising from the prominent eye. Occiput nearly straight, very slightly sinuous; the occipital bands are prominent and are prolonged in the antennals. Second segment of antennae nearly as long as the last three; third shortest; second and third very light in color, the basal and terminal two being somewhat darker.

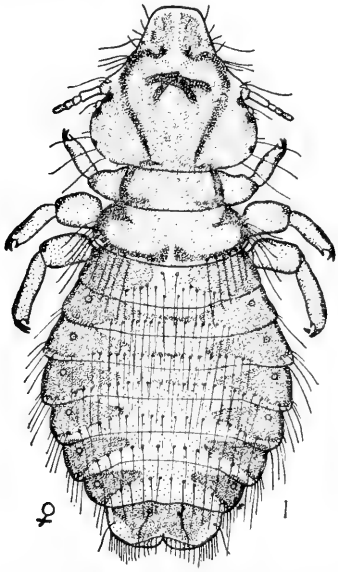

FIG. 1—*Docophorus fissi-signatus* n. s. ♀

Thorax shorter than head and narrower; length, .4 mm. Prothorax, a trifle less than half that length; quadrangular with a lateral marginal band which also extends along the posterior margin nearly to the center. Median portion of segment light in color. Metathorax with sides diverging, posterior angles broadly rounded and posterior margin convex; a row of pustulated hairs extends around from the straight diverging sides half way to the center of the posterior margin. There are two blotches leaving a narrow uncolored line down the center; darker marginal bands extend from the anterior angles to the median uncolored line.

Abdomen elliptical with segments of nearly equal length except the ninth, which is very small and bilobed; color pale except for the dark, sharply defined, triangular transverse blotches on the first seven segments which extend in about two-thirds of the way to the center; These segments also have pitchy lateral bands. A spiracle occurs in a clear space on segments two to seven. The eighth segment is dark in color except along the margin; two hairs arise near the center of this segment from clear pustules. The last two segments are rounded, the eighth with straight, almost parallel lateral sides, and a fringe of hairs on the posterior margin. There is a row of hairs across the middle of each of the preceding segments and several in each posterior angle.

Nirmus fuscus Nitzsch.

Several specimens from "hawk" (Cochabamba, Bolivia); also from "hawk" (Charuplaya, Bolivia).

Lipeurus temporalis Nitzsch.

Several specimens from "river duck" (Charuplaya, Bolivia).

Lipeurus epiphanes n. sp. (Fig. 2.)

Male and female from "desert curlew" (Lagonillas, Bolivia).

Description of female.—Body. length, 2.88 mm.; width, .56 mm. Head: Length, .6 mm.; width, .34 mm.; conical. Clypeus parabolic in front, sides almost straight and parallel; edge transparent with signature concentric to it; suture distinct; a rather long hair at the

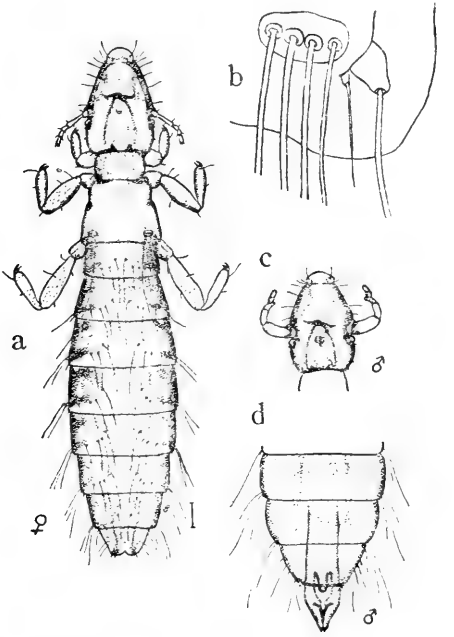

FIG. 2—*Lipeurus epiphanes* n. sp.—*a*, female; *b*, tactile hairs of the postero-lateral angle of the metathorax; *c*, head of male; *d*, last abdominal segments of male.

angle between the straight side and the parabolic front, and three long ones at the suture. Sides of head behind the clypeal suture straight, diverging to the antennae and bordered by the prominent antennal bands; these bands turn inward at the clypeal suture, fol-

lowing it and almost meeting at the center; three hairs, evenly spaced, on the margin between the clypeal suture and the short trabeculae and another one arising on the ventral surface extending beyond the margin at a point between the anterior two of those mentioned above. From a point near the posterior ends of the antennal bands arise two internal bands which extend obliquely inward a short distance, then curve forward and run parallel to the posterior lateral angles of the clypeal signature. A narrow dark band extends entirely around the posterior part of the head connecting the ocular bands; temples almost straight and slightly converging behind the eyes, rounded at the posterior angles; occipital margin concave; occipital bands narrow, distinct. Eye prominent with a short hair on the dorsal surface and a short spine at its posterior margin; six short hairs and spines on the temples. Antennae pale, second segment as long as the last two, third segment shortest. In the male antenna the first segment is large and about as long as the following three segments together; the second segment comes next in length and the fourth is the shortest; the third has a narrow pointed appendage; there is a horseshoe-shaped blotch at the base of the first segment.

Thorax trapezoidal; prothorax quadrilateral, with sides slightly diverging behind; coxae show through plainly; length, 16 mm.; width, 28 mm. Metathorax length, .36 mm.; width at posterior angles, .4 mm.; sides diverging behind; posterior angles rounded; lateral margins notched at a point about one-third the distance from the anterior angles with a dark blotch, probably marking the suture between the metathorax and mesothorax. There are six hairs arising from the dorsal surface in the posterior angles; the outer one is very long and arises from a large curious papilla; the second is short, arising from a small papilla; the other four are very long and close together in a group. (See b, Fig. 2.)

The abdomen is long and rather narrow, expanding slightly to the fourth segment which is widest; last segment bilobed, straight across the posterior margin in the male. There are narrow dark lateral bands on each segment except the last and transverse blotches, which extend about a third the way across the body, and there are also faint lengthwise median blotches. Each lateral band extends into the segment in front and has two long appendages which curve back making a clear space in the anterior margin of the transverse blotch of the segment to which the lateral band belongs. The blotch on the last segment is median and bilobed; the margin of this segment is transparent. There are about six hairs on each segment except the last, and several hairs in the posterior angles. In the male the posterior margin of the last segment is straight. The genitalia of the male are as shown in Fig. 2, d.

Goniodes aliceps Tasch.

Four specimens from "Colloma" (San Ernesto, Bolivia), "Colloma" being merely the local name, we are able to make from it no determination of the bird, but from the kinds of its parasites we can say, almost with certainty, that it is some species of Tinamou, probably *Crypturus* sp.

Goniodes agonus Nitzsch.

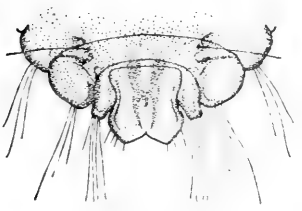

FIG. 3.—Last abdominal segments of *Goniodes agonus* Nitzsch. ♂

Six specimens, including one male, from "Colloma" (San Ernesto, Bolivia) collected with *G. aliceps*. The male of the curious species has not heretofore been recorded. Our male specimen unfortunately has the head damaged and the antennae lost. We figure (fig. 3) the last segments of the abdomen which differ greatly from the female.

Colpocephalum osborni Kellogg.

Several specimens from "red-headed bustard" (Choro, Bolivia, 3700 metres, dry season).

Colpocephalum flavescens Nitzsch.

Two females from "hawk" (Charuplaya, Bolivia, 1350 metres, dry season):

Menopon maestum Kellogg and Chapman.

Three specimens from "bird" (Choro, Bolivia).

Menopon sp. (juv.).

One specimen from "blue finch" (Choro, Bolivia).

Trinoton luridum Nitzsch.

One specimen from "river duck" (Charuplaya, Bolivia).

Trinoton lituratum Nitzsch.

Two specimens from "river duck" (Charuplaya, Bolivia).

Laemobothrium sp.

Two specimens from "grasshopper hawk" (Charuplaya, Bolivia). Although this species differs obviously from any *Laemobothrium* yet described in satisfactory manner, we shall not add a new species to this genus until the existing species determinations have been thoroughly revised. The genus is at present in a simply impossible condition.

Physostomum doratophorum Carriker.

Several specimens from three (three species?) "hummingbirds." (Choro. Bolivia.)

A New Genus of Nomadine Bees.

By S. A. Rohwer, Washington, D. C.

Some time ago Professor T. D. A. Cockerell requested information as to the generic position of *Pasites pilipes* Cresson. Late in October, Mr. J. C. Crawford, Jr., examined Cresson's type, which is in Philadelphia, making sure that the specimens in the U. S. National Museum were the same species as the type. On examination it was found that this species represents a new generic, or subgeneric, group in the family Nomadidae, differing from *Pasites* and the other genera in a number of points. The accompanying figures were made from camera lucida sketches:

Nomadosoma new genus.

Type of the genus: *Pasites pilipes* Cresson (Cuba).

Rather small bees of Nomadine habitus; smooth and shining; mandibles simple; maxillary palpi as in figure 1; labial palpi four-jointed, the two basal joints as in figure 2, the two apical joints were accidentally broken; third antennal joint but little shorter than joints four and five; frontal carina almost wanting; scutellum flat, level with the mesonotum, somewhat depressed in the posterior middle; anterior coxæ with short tubercles, which are more distinct in the male, legs of the female more hairy than in male, and more hairy than in most

Holarctic species of *Nomada;* gaster as in *Nomada,* except that it is more flattened in female, with the venter more than normally pubescent, tergal segments shining very sparsely punctured; last apical segment of the male entire; fore wing as in figure 3, hind wings normal for *Nomada.*

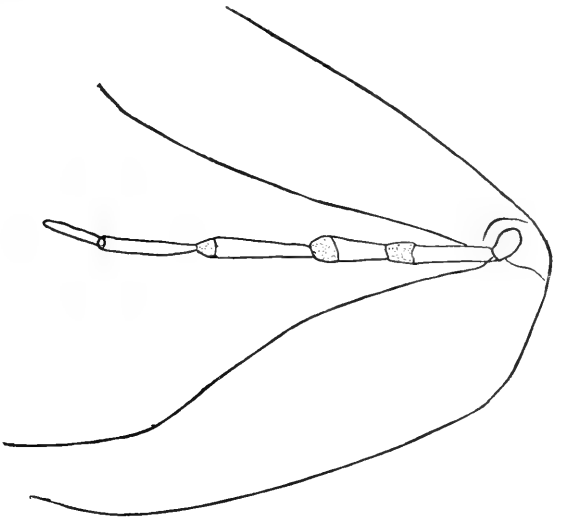

FIG. 1.—Maxillary palpi of *Nomadosoma pilipes* (Cresson, with the articulating maxilla.

The shining appearance, flat scutellum and two cubital cells distinguish this at once from its allies. In Robertson's tables (Can. Ent. Vol. 35, 1903, p. 173, etc.) *Nomadosoma* runs in with *Phor* Robertson and *Holonomada* Robertson. The male

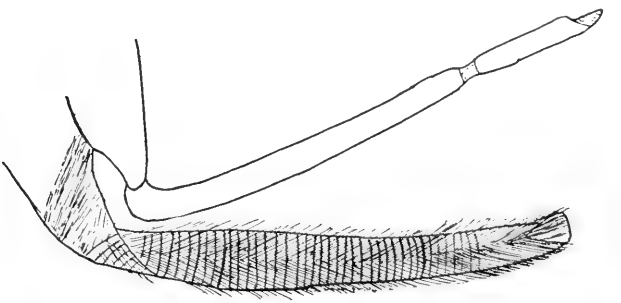

FIG. 2.—Two basal joints of labial palpi and tongue of *Nomadosoma pilipes* (Cresson).

runs to *Holonomada* Robertson. If the coxæ were said to be spined both sexes would run to *Ciphen* Robertson.

In Ashmead's tables (Tr. Am. Ent. Soc., Vol. 27, 1899, p. 49, etc.) it will not run satisfactorily.

In Cockerell and Atkin's table based on the trophi (Ann. Mag. Nat. Hist. Ser. 7, Vol. 10, July, 1902, p. 42, etc.) *Nomadosoma* runs to *Nomada fucata* Panzer.

Pasites Jurine, *Biastes* Panzer and *Nomadita* Mocsary belong to the Nomadinæ and have two cubital cells. *Pasites* and *Biastes* have the gaster of the female of the cylindrical Nomadine type, the third antennal joint is much shorter than four plus five, the frontal carina is strong, the body is strongly punctured; *Pasites* has the radial cell truncate and the scutellum bilobate; *Biastes* has the scutellum rounded. *Nomadita* Mocsary, which is known from the male only, may have the venation as in *Heminomada* Cockerell, but as it is compared with *Biastes* perhaps has the venation as in that genus. It has, however, a strong frontal carina and the "scutellum bituberculatum."

Heminomada Cockerell has the first transverse cubitus (not the second) wanting, and differs in many other ways from *Nomadosoma.*

Nomadosoma pilipes (Cresson).

Cresson (Proc. Ent. Soc. Phila., Vol. 4, 1865, p. 183) described his *Pasites pilipes* as follows:

"Chestnut-brown, polished; sides of face, clypeus, collar, tubercles, two spots on pleura, postscutellum and narrow bands on abdomen, white; hind legs of ♀ densely pilose; wings hyaline, costa-apical margin fuscous.

"*Female.*—Chestnut-brown polished, clothed with pale pubescence; face flat, highly polished, impunctate; sides of the face obscurely, and the clypeus, whitish; cheeks and labrum densely pubescent; antennæ piceous, paler at base. Thorax indistinctly punctured, pleura and metathorax rather densely clothed with silvery-white pubescence; a line on the collar, tubercles, two spots on pleura, two small spots on scutellum, and the post-scutellum, white; scutellum slightly subbilobate; tegulæ brown, the outer margins pale. Wings hyaline, faintly tinged with fuscous, slightly iridescent, the costa-apical margin broad-

ly fuscous. Legs chestnut-brown, clothed with pale pubescence, which is long and dense on the posterior tibiæ and tarsi; posterior coxæ dilated and flattened, with a whitish spot at tip. Abdomen broadly ovate, convex, polished, rather densely clothed with short pale pubescence on the sides and apex; on the middle of the first, second, fourth and fifth segments above, a narrow, rather uneven, whitish fascia, that on the fourth segment interrupted on the middle; on each extreme side of the third segment a short, narrow, whitish line; apical segment truncate, densely clothed with fuscous pubescence; beneath chestnut-brown, immaculate. Length 3½ lines; expanse of wings 6½ lines.

"*Male.*—Resembles the female, except the abdomen is longer, not so broad, and pointed at tip as in males of *Nomada;* the posterior legs are not densely pilose as in the ♀. Length 3 lines; expanse of wings 5½ lines.

"*Collection.*—Ent. Soc. Phila. Two specimens.

"This species has much the general appearance of a *Nomada,* and in the ♂ specimen, the only difference I can see is, that the anterior wings have only two submarginal cells, instead of

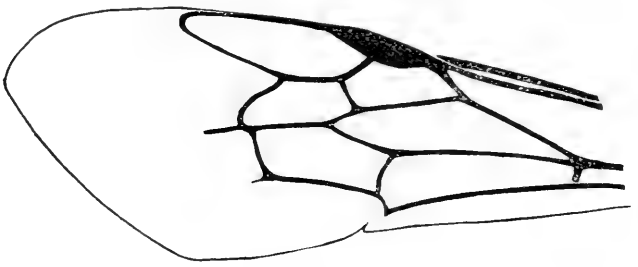

FIG. 3.—Anterior wing of *Nomadosoma pilipes* (Cresson).

three; but in the ♀, the form is more robust, and the hind legs are densely pilose, which is never the case in the females of *Nomada.*"

The chestnut color in the specimens in the U. S. National Museum is replaced almost entirely by black. The female came from Cuba, the male was collected by Mr. A. Busck at Baracoa, Cuba, Aug., 1902.

PROFESSOR W. M. WHEELER, of the Department of Economic Entomology, Bussey Institution, Harvard University, started on his vacation November 1 and spent some days in the Huachuca Mountains, Arizona.

The Musical Habits of Some New England Orthoptera in September.

By H. A. Allard, United States Department of Agriculture, Washington, D. C.

Primarily to become better acquainted with the call notes of some New England katydids and grasshoppers, the writer spent the first three weeks of September, 1910, at Oxford, Mass. Throughout this period the days and evenings were pleasantly occupied in rambles through the fields and pastures in the beautiful Fort Hill region.* The stridulations of a number of musical Orthoptera were carefully studied. Observations concerning these may be of some aid to those who have become interested in the habits of musical insects.

The following species, including a few unmusical ones, were observed or captured:

In the fields and meadows: *Orchelimum vulgare* Harris; *Conocephalus ensiger* Harris; *Amblycorypha rotundifolia* Scudd.; *Scudderia texensis* S. & P.; *Scudderia furcata* Brunner; *Xiphidium fasciatum* DeG.; *Xiphidium brevipenne* Scudd.; *Gryllus pennsylvanicus* Burm.; *Nemobius fasciatus* (*vittatus*) Harris; *Stenobothrus curtipennis* Harris; *Melanoplus femoratus* Burm.; *Encoptolophus sordidus* Burm. In weeds, vines and shrubbery: *Oecanthus niveus* DeG.; *Oecanthus angustipennis* Fitch; *Oecanthus nigricornis* Walker; *Oecanthus quadripunctatus* Beut. Beneath leaves in damp localities: *Nemobius palustris* Blatchley. In wells, beneath stone piles, etc.: *Ceuthophilus maculatus* Harris. In lofty trees: *Cyrtophyllus perspicillatus* Linn.†

* About Sept. 22 the writer spent several days at Crestwood, Yonkers, N. Y. During warm, sunny afternoons many males of *Conocephalus triops*, Linn., were stridulating in the fields and meadows. In a small area hardly larger than 25 square feet, and overgrown with grass, weeds and asters the writer captured half a dozen specimens. The note is a keen continuous z-z-z-z-z-z-z-z. This Conocephalus is probably common throughout western and southern Connecticut, as the writer heard the same stridulation in this region on his way into New York from Providence.

†. The writer is indebted to Mr. A. N. Caudell, of the U. S. National Museum, who has kindly confirmed or made all identifications of Orthoptera listed in this paper.

The writer arrived at Mr. Howard's farm on Fort Hill in the afternoon of August 29, 1910. At this time the nights had become very cool, damp and autumn-like. Light frosts were expected in low grounds in some localities. As far as the eye could see across the hills, the fields were a fresh, alluring emerald green. Hosts of stridulating creatures were active by day and by night, producing a chorus of soothing sounds and harmonies.

In the clover fields and in the weeds by the roadsides were small colonies of *Orchelimum vulgare* Harris. The notes of this locust are rather soft, and are delivered in a leisurely manner, tsip-tsip-tsip-tseeeeeeeeeeeeee. This locust is a late summer species and stridulates persistently by night as well as by day. At night, especially if the weather is chilly, its notes are not as brisk and as persistent as the day notes. Scudder says of its notes: "The night song differs from that of the day simply in its slower movement; the pitch of both is at B flat, two octaves above middle C."

Late in the evening and well into the night *Conocephalus ensiger* Harris, adds to the noisy chorus of insect sounds. This locust prefers the fresh herbage of cultivated fields, and is especially to be looked for in the fields of corn. One oftentimes finds a noisy singer perched 6 or 7 feet from the ground on a corn stalk or tassel.

The call notes of this Conocephalus are intermittent and follow each other rather briskly, tsip-tsip-tsip-tsip. These stridulations are continued indefinitely, and, to the writer's ears, lack any decided harshness or buzzing characteristic of *C. bruneri* and others. They are rather soft and lisping, recalling to mind the staccato lisps of an Orchelimum. *C. ensiger* is the only species with which the writer has become acquainted in this region It is a very common species in nearly all upland localities. One sometimes meets with it in large colonies among the luxuriant weeds and grasses in lowlands.

McNeill says of this *Conocephalus*: "Its song is a loud rasping zip-zip-zip repeated indefinitely." He also states that

it recalls the staccato lisps of *Orchelimum vulgare*. The last comparison is more accurate, since the notes of this Conocephalus do not impress me as at all rasping.

A very common katydid at this season is the pretty *Amblycorypha rotundifolia* Scudd. Its notes may be heard at all times during the day as well as during warm nights. This *Amblycorypha* occurs everywhere in the grass, weeds and shrubbery of fields and pastures. It was especially abundant among the shrubby pasture growths, consisting mainly of species of *Vaccinium, Gaylussacia, Kalmia angustifolia*, and the two species of *Spiraea*, i. e., *tomentosa* and *salicifolia*. Its notes are soft and lisping and continue indefinitely. They may be expressed thus: Tsip-i-tsip-i-tsip-i-tsip-i-tsip. These stridulations recall the dainty lispings of part of the song of *Amblycorypha uhleri*. The writer's observations of its stridulations are very similar to those of Scudder.

Scudderia texensis S. & P. prefers particularly the open grass and clover fields. At Oxford, Mass., the writer has studied two distinct methods of stridulation produced at will by this Scudderia. The usual note heard from Massachusetts to Georgia is a soft sh-sh-sh-sh-sh-sh occasionally repeated. This note is produced by a rapid shuffling of the wings very briefly. At other times and much more rarely the call consists of a succession of sharp, keen, distinctly rasping notes slowly delivered, zeet-zeet-zeet-zeet. These notes, which are so unlike the usual call, are usually answered at once in a similar manner by another individual elsewhere. One is at first tempted to assign them to some other insect.

By creeping carefully toward a musician, the writer has watched this mode of stridulation close at hand. The tegmina are very slowly and deliberately opened and rasped upon each other slowly several times. These notes are really more in keeping with the incisive notes of other Scudderias. It is evident that these notes are not accidental. They probably convey some definite meaning to other individuals within earshot.

Scudderia texensis becomes noisy as soon as the afternoon

sun gets low, and continues to stridulate into the evening. These locusts sometimes congregate in small colonies of half a dozen or more in favored spots. It is a persistent singer, although its notes are delivered at rather irregular and infrequent intervals, a characteristic of most Scudderias. I have as yet noted only the usual sh-sh-sh-sh at Thompson's Mills, Georgia, where it is very common.

Scudderia furcata Brunner, is possibly less common in central Massachusetts than the preceding species. At least it is much less frequently heard in stridulation. Its calls are delivered only at long and irregular intervals, and consist of a single, keen, incisive zeep, or sometimes three slowly in succession, zeep-zeep-zeep.

One warm, sunny afternoon in early September, 1910, in order to locate and capture one of these katydids which had just produced its single zeep, the writer lay down on the grass in the vicinity and waited. The insect did not repeat its note until nearly two hours later, after which the capture was easily made. This katydid stridulates during afternoons and less frequently at night. Its call is delivered only at long and irregular intervals, so that much patience must be exercised to locate a singer. Riley's description of the notes of *Scudderia furcata* is very exact: "It consists of a softer zeep, zeep, sometimes uttered singly but generally thrice in succession."

A few times the writer has heard in this locality as late as the last week of October the single incisive zeep of some belated katydid. The call usually issued from the green foliage of some shrub or apple tree which had delayed shedding the leaves. It is possible that this was the call of *Scudderia furcata*. *Scudderia texensis* had long since become silenced by the cold days and nights of this season.

The tiny *Xiphidium fasciatum* DeG. prefers the tangles of weeds and grasses bordering the grass fields, and may oftentimes be found in large colonies. Its notes are extremely faint, and in manner of delivery are the exact counterpart of an Orchelimum's notes. The staccato lisps nearly always precede

the phrase tseeeeeeeeeeeeee. The entire song may be written thus: Tip-tip-tip-tseeeeeeeeeeeeee. The entire stridulation is so faint as to escape the hearing. The staccato lisps, tip-tip-tip, were so faint the writer could hear them only by the closest attention, although the wings could be seen in motion at the time.

At this season of the year, with the usual New England breezes stirring the herbage violently, and accompanied by the incessant chirpings of *Gryllus pennsylvanicus* and *Nemobius fasciatus vittatus*, the attenuated lispings of *Xiphidium fasciatum* became quite inaudible. It seems as if the notes of the New England individuals are considerably fainter than those the writer has studied in Northern Georgia. Representing graphically the preceding staccato lisps by dots and the prolonged phrases tseeeeeeeeeeeeee by dashes, the successive notes of an individual which the writer observed in a box were thus: ... ——— ... ——— .... ——— .... ——— ... ... ——— ... ... ——— .. It is evident that from three to six staccato lisps preceded each time the phrase tseeeeeeeeeeeeee. This method of representing the notes at once shows the relative frequency of the staccato lisps and the longer phrases, as these vary greatly with different species, both Xiphidiums and Orchelimums.

McNeil says of *Xiphidium fasciatum*: "Its song is a faint echo of that of *Orchelimum vulgare*, with the zip-zip omitted." He speaks also of its "faint little quaver." It is evident that McNeil had failed to catch the staccato lisps which are always present in the call notes of this tiny locust.

Another tiny *Xiphidium* occurring in all situations in company with *Xiphidium fasciatum* is *Xiphidium brevipenne* Scudd. It is possibly less common in this locality than *fasciatum*. The writer could not determine its stridulations in the field, so a number of males and females were placed in a pasteboard box together with some grass. In a few minutes a number were in continuous song throughout the afternoon and night. The stridulations of this *Xiphidium* are the least audi-

ble of any locust the writer has ever observed. Although a persistent singer, the notes become inaudible only a few feet away. In the fields they are quite lost amidst the sounds of rustling foliage, the chirpings of crickets, etc.

The notes of *Xiphidium brevipenne* are very brief and much more hurried in their delivery than those of *X. fasciatum*. In this respect they approach more nearly the dainty stridulations of *X. nemorale* Scudd. In the song of *X. brevipenne* usually only one or two almost inaudible staccato lisps precede one, two or even three of the brief, faint phrases, tseeeeeee-tseeeeee. The phrases tseeeee are of much longer duration in the song of *X. fasciatum*, and are rarely heard without the preceding staccato lisps which are of indefinite number.

Graphically represented, the notes of an individual *X. brevipenne* were as follows: .—— —— .—— —— .—— —— .—— .—— .—— .—— .——. ..—— —— .—— .—— ..—— —— —— .—— —— .—— .—— —— .—— —— .—— .—— —— —— —— ...—— .—— .—— —— .—— ——.. .—— .—— .—— .. —— .. —— . —— . —— .. —— . —— . —— . —— . —— .. —— . —— . —— .. —— .. . —— —— —— . —— . —— . —— . —— . —— —— . —— . —— . —— .. —— . —— . —— .. —— .. —— —— . —— .. —— . —— ——

Gryllus pennsylvanicus Burm., at this season may be found in great numbers crawling over the grassy upland fields chirping incessantly in the sunshine. Its notes in New England are always a brief intermittent musical chirp-chirp-chirp.

Nemobius fasciatus (vittatus) DeG. occupies the grassy fields and pastures everywhere, trilling incessantly during the hours of sunshine. In some localities the trill is very brief and shrill tiiii-tiiii-tiiii. In others the trill is exceedingly high and indefinitely prolonged ti-ti-ti-ti-ti-ti-ti-ti. The prolonged trillers appear to be confined almost entirely to dry, grassy, upland situations. The intermittent singers seem to prefer low, wet grounds. This distribution is rather clearly defined.

Piers who has carefully studied some of the Nova Scotia Orthoptera, found this *Nemobius* exceedingly abundant in the fields around Halifax.* His excellent description of its intermittent notes is as follows: "Its notes are one of the most familiar sounds of autumn and are heard both during the day and night. The stridulation is produced by lifting the wing covers about 45 degrees above the abdomen and then shuffling them together producing a sound resembling the word plee-e-e-e plee-e-e-e plee-e-e-e or cree-e-e-e. It has been suggested that these notes can be reproduced by taking a silver half dollar between the fingers and striking the coin with the edge of a nickel."

A very common little grasshopper in nearly all warm, sunny, grassy situations is *Stenobothrus curtipennis* Harris. The writer found this insect particularly common in dry upland fields with a sunny southern exposure. Small colonies were always evident by their brief faint silken lispings several times repeated at irregular intervals. This little Acridian is heard only during the day. Its stridulations are produced by sawing the inner surface of both thighs simultaneously against the edges of the tegmina. Blatchley finds it more abundant in Indiana in damp grounds near tamarack swamps.

Melanoplus femoratus Burm., and *Encoptolophus sordidus* Burm., are two common field insects in late summer and early autumn. The former is clumsy and apparently unmusical. The latter is a vigorous flyer and produces a lively crepitation during its flight movements over the fields.

Four fragile-bodied musical tree crickets occupy almost exclusively the shrubbery and vines. These are all species of Oecanthus, namely, *O. niveus, O. angustipennis, O. nigricornis* and *O. quadripunctatus.*

Oecanthus niveus DeG. is usually called the fall cricket. This beautiful pearly-winged creature takes up its abode in our grape arbors, hedges, etc. Its notes are low, deep-toned,

*. "Preliminary Notes on the Orthoptera of Nova Scotia," by Harry Piers, in Proceedings and Transactions of the Nova Scotia Institute of Science, Vol. IX, 1895-96.

and solemn in their effect upon the mind. Single singers sometimes continue to stridulate by day, but the great synchronal chorus begins at evening. If the night is warm and moonlight, waves of solemn, rhythmical music soon swing backward and forward between the hedges. It is worth while to hear this grand, antiphonal serenade, for it induces a peculiar, indescribable psychic state—an intermingling of sadness and reposeful meditation. It is a "slumbrous breathing" to the mind of Thoreau. Hawthorne calls it an "audible stillness" which "if moonlight could be heard, it would sound like that." Lafcadio Hearn in Japan may as well have heard these same solemn cricket sounds when he wrote: "The pleasure-pain of autumn's beauty, the weird sweetness of the voices of the night, the magical quickening of remembrance by echoes of forest and field." This tree cricket sings until the nights become so cold that the intermittent c-r-e-a-k—c-r-e-a-k is very slowly delivered. The notes of this cricket have been more carefully described than the notes of most other species, by Davis, McNeil, Fitch, Burroughs, Thoreau, Hawthorne and others.

Scudder's description of the song of *Oecanthus niveus* does not well apply to the intermittent notes of this cricket. He says: "The song of the male is an exceedingly shrill and rapid continuous trill; its 'dry rosined wings' must play upon each other with wonderful rapidity, for at its slowest, and the rapidity varies somewhat, there are at least sixteen beats a second; the trill is nearly uniform and lasts for from two or three seconds to a minute or two."* The shrill pitch and the prolonged trill make it very probable that Scudder had heard the trill of *O. nigricornis* or *O. quadripunctatus.* McNeil aptly remarks that Scudder's description and musical notation of *niveus* "seems to be the song of *fasciatus.*"

Oecanthus angustipennis Fitch, is considerably less common than the other species of *Oecanthus* at Oxford, Mass. It prefers the abundant foliage of the sweet fern, and is very

*. "Some American Crickets," by S. H. Scudder, in Harper's Magazine, Vol. XCIII, October 1896.

musical on cloudy days and at night. It may sometimes be heard in low trees. This tree cricket appears to be more susceptible to cold than the others, and sooner becomes silent at the approach of autumn. Its notes are a faint, intermittent phrase—treeeeeee—with nearly equal intervals of silence intervening. Davis accurately describes it as "a faint, continuous whir, lasting only about five seconds, with an equal interval of rest." Blatchley's description is very similar. W. Faxon* describes them as "consisting of a trill of several seconds' duration succeeded by a short pause; this song suggests the spring note of the toad heard afar off."

Oecanthus nigricornis Walker is not as arboreal in its habits as the preceding species. It dwells among weeds, grass and golden rods nearly everywhere in fields and pastures. Its song is a steady, quavering, sustained trill. The trill of some individuals is strong, deep and rich-toned, recalling the mellow trill of *O. latipennis*. The pitch and volume of sound vary noticeably with different individuals of this species. This Oecanthus is a common species at Oxford, Mass., in August and September.

Oecanthus quadripunctatus Beut., is also a common species, preferring the same environment of weeds and low shrubs as *O. nigricornis*. The writer has been unable to find any constant differences which serve to distinguish the trills of these two species. That of *O. quadripunctatus* is long sustained and sometimes shrill. The notes of other individuals are stronger and deeper-toned, recalling the melodious trill of *O. latipennis* as do those of *O. nigricornis*. The stridulations of *O. quadripunctatus* in New England have always seemed louder and lower-toned to the writer than the weaker and shriller trilling of the same species in Northern Georgia. This *Oecanthus* is a persistent triller throughout the days and nights. Faxon says: "Song similar to No. 3 (meaning *O. nigricornis*) but clearer in tone and no doubt sufficiently distinct on close ac-

*. "Habits and Notes of the New England Species of Oecanthus," by Walter Faxon, in Psyche, Vol. 9, No. 300, April 1901.

quaintance." The writer has not yet been able to distinguish them this readily.

Beneath the matted leaves and grass in damp spots and gullies by the roadsides, and in low, wet grounds the little *Nemobius palustris* Blatchley, dwells. In such situations small colonies of four or five individuals may be heard in stridulation. The stridulation of this pretty *Nemobius* is a faint, quavering, high pitched trill almost indistinguishable from the trill of the more southern *Nemobius janus* Kirby. The notes of these two species are so closely alike that the writer thought he had heard *N. palustris* around Washington, D. C. It proved to be the trill of *N. janus,* however. Its weak trill and the habit of keeping well concealed beneath stones and leaves, together with its local and irregular distribution in any locality have no doubt caused this little cricket to be many times overlooked. In comparison with *N. fasciatus vittatus,* it is not an especially common species at Oxford, Mass. A naturalist, however, familiar with its habits and stridulation could capture a fair supply of specimens in this region. It is a very shy cricket and can rarely be seen in stridulation.

The writer has taken *Ceuthophilus maculatus* Harris, several times at Oxford, Mass. Once or twice it was found deep down in the crevices of a stone pile, and at other times in crannies in covered wells. It is an unmusical insect.

At Oxford, Mass., the big katydid, *Cyrtophyllus perspicillatus* L., is not especially common judging from the numbers heard in song at different localities. In some localities it is entirely absent, especially in the West Oxford district. Each year one or two small colonies may be heard in some big maples on Mr. Howard's farm near Fort Hill. It is an exceedingly common and noisy insect in some big woods near Quinnebaug, Connecticut.

This katydid stridulates almost entirely after dark, although its notes are sometimes heard during the day. There are few insect stridulations as loud, rasping and grating as those of *Cyrtophyllus perspicillatus.* It is not by any means an easy

matter to locate and capture one of these insects on the topmost branches of a maple. The writer heard a few of these katydids on Fort Hill as late as September 20, 1910.

At this season when the nights were coolest the notes of this katydid were so slowly and difficultly delivered that they had become almost painfully rasping and grating in character. One dark, windy night the writer spent an hour or more trying to locate a male in the top of a lofty maple. By the aid of lighted matches the position of the insect was located. The insect was so benumbed with cold that it could barely rasp its tegmina upon each other.

Scudder says that its stridulation "has a shocking lack of melody * * * so that the air is filled by these noisy troubadours with an indescribably confused and grating clatter."

In many respects autumn is a particularly favorable season for the study of musical insects. Insects are very susceptible to changes of temperature. Many musical insects, which in midsummer stridulate almost entirely after dark, gradually cease their nocturnal stridulations as the autumn nights become colder. Day by day, as the season advances, and the chill of evening becomes more noticeable, the musical katydids and crickets usher in their chorus a little earlier each afternoon, until practically all the nocturnal singers are in full chorus shortly after midday. At Oxford, Mass., the writer entered the following notes in his journal concerning lower temperatures and insect stridulations.

September 15, 1910, "following recent rains the nights have become very cold. They would be almost silent but for the slow, painful raspings of a few individuals of *Cyrtophyllus perspicillatus* and the synchronal music of *Oecanthus niveus*. *Amblycorypha rotundifolia* becomes quite silent, or at least barely audible if the nights are not too cold. *Conocephalus ensiger* is less sensitive to the cold and continues to stridulate persistently, even after *Amblycorypha rotundifolia* has been silenced by the evening chill.

Insects which I heard almost entirely after dark a few weeks

ago I now hear from midday until sunset, when most species again become practically silent. If the afternoon is warm and sunny, however, the fields and pastures are filled with various insect sounds. By the roadsides, in the fields among golden rods and asters, the happy musicians disport themselves. *Amblycorypha rotundifolia, Conocephalus ensiger, Orchelimum vulgare, Scudderia texensis, Scudderia furcata,* all are as noisy as they can make themselves. It is a simple matter now to observe and capture almost any musician, for all seem less inclined to fly after experiencing the cold nights of this season.

If the weather moderates suddenly and the evenings become warm with threatening thunderstorms, the usual nocturnal awakening follows. *Oecanthus niveus* suddenly starts the warm night air into an almost audible pulsation; the big *Cyrtophyllus perspicillatus* rasps out a faster tune; *Conocephalus ensiger, Amblycorypha rotundifolia* and *Scudderia furcata* lisp their loudest each in his own manner, until it seems as if the silent shrubs of a few nights ago had transformed their leaves into living, lisping creatures."

Although the stridulations of insects become noticeably slower and fainter in cold weather, the pitch and manner of delivery characteristic of each species does not materially change.

Mr. J. Chester Bradley, Special Assistant Entomologist of the Georgia State Board of Entomology, Atlanta, Georgia, has undertaken the preparation of a preliminary catalog of insects of that State, and will appreciate greatly any co-operation on the part of those possessing records of Georgia specimens.

Dr. F. D. Godman has acknowledged the receipt, in London, of the first and principal set of his own Mexican and Central American Odonata, described and enumerated in the *Biologia Centrali Americana,* from Dr. P. P. Calvert. The specimens will be placed in the British Museum of Natural History.

Mr. R. J. Tilyard's recently published "Monograph of the genus Synthemis" (Proc. Linn. Soc. New South Wales, 1910, Vol. XXXV, pp. 312-377, 6 plates, 2 of them colored) contains some observations on Corduline dragonflies and their affinities, of interest to students of this group in all parts of the world.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

TO CONTRIBUTORS.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, four weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—Ed.

PHILADELPHIA, PA., JANUARY, 1911.

In another place in this number attention has been called to editorial changes in the NEWS staff and the hope has been expressed that the friends and supporters of this journal in the past will continue their aid as contributors to its pages and as subscribers to its resources. We ask not only for the systematic, life-history, anatomic and physiologic papers on insects, arachnids and myriopods, but also for the proceedings of entomological clubs and societies and all notes, brief or longer, which, to quote the original prospectus of the NEWS, dated December 1, 1889, "will keep entomologists *en rapport* with what is being accomplished in serials and by monographs at home and abroad, and which will also give the items of interesting news concerning explorations and explorers, collections and collectors."

☞PLEASE NOTICE that after January 10, 1911, the NEWS will be mailed only to those who have renewed their subscriptions.

SINCE the NEWS is not strictly adverse to the publication of non-scientific entomological articles, I have to record a brief contribution which may not be without interest. Most entomologists are, I presume, without sympathy for the average novel, but two recent books from the pen of Gene Stratton-Porter, "Freckles" and "A Girl of the Limberlost," may not only offer some entertainment to Lepidopterists, but the beginner may possibly gain some knowledge from them. Such statements as are made in the latter work, however, that *Citheronia regalis* is the rarest moth in America and "worth a dollar apiece" are unfortunate, as they may prove misleading to any who might be influenced by these two books to enter the study of entomology.—KARL R. COOLIDGE.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

THE Department of Zoology and Entomology of the Ohio State University, lately issued an invitation to its friends to call and inspect the collection of Butterflies and Moths recently donated by Mrs. Catherine Tallant, of Richmond, Indiana, to the Department; a special exhibition of this collection was given on December 8th, 9th and 10th, 1910, in Biological Hall, of the University.

THE UNIVERSITY OF SASKATCHEWAN promises to be a magnificent foundation when entirely completed. It contains two colleges—the College of Arts and Science and the College of Agriculture. Prof. T. N. Willing, the well known entomologist, is Professor of Natural History and Secretary of the College of Agriculture. The college is indebted to Prof. Willing for the use of his well-chosen museum, consisting of plants, insects, birds, fur bearing and other animals peculiar to Saskatchewan. The University is located in the flourishing town of Saskatoon.

PROTAMBULYX CARTERI.—In Dr. William Barnes' List of North American Sphingidae, recently published in Psyche (Vol. XVII, No. 5), he refers to *Protambulyx carteri* R. & J. He writes: "Rothschild and Jordan give Florida as a locality for this new species on the strength of a single ♂ received from the Kny-Scheerer Company."

I, myself, captured this specimen and sent it to Baron Rothschild, Dr. Lagai of the Kny-Scheerer Company kindly including it in a lot of Lepidoptera he was sending at the time. After some delay and an offer from the Baron to purchase the specimen it was returned to me. It is now in my collection, having a label in the handwriting of its describer. I have several others of the same species, taken by myself at light in Miami, Florida.—ANNIE TRUMBULL SLOSSON.

THE undersigned has been working upon the subject of "Insects Injurious to Books" for a number of years, and would be thankful for any information of this character that the readers may be able to give him.—WM. R. REINICK, The Free Library of Philadelphia, 17th and Spring Garden Streets, Philadelphia, Pa.

WE HAVE lately received an interesting letter from Prof. C. B. Hardenberg, M.A., Government Entomologist, Transvaal Department of Agriculture, Pretoria, Africa. He has fourteen men in the Entomological Department, seven being employed as fruit and plant inspectors. The entomologist is inaugurating a system of note-keeping

and recording like that used in the Bureau at Washington. Up to date methods for the care of specimens are also being introduced and new collections are being made as rapidly as possible. "Collecting goes on here all the year, especially in the northern parts of the country and the 'low veld' and I am papering a lot of duplicates for future use. This country is a paradise for Orthoptera, especially Locustidae and Mantidae, the latter often attaining the most absurd shapes and configurations. They are most abundantly found in the wild Acacias, or thorn bushes which dot the veld.

"Taking everything into consideration it is a very interesting country entomologically. Very little life-history work or scientific investigation has been done, in fact only the surface has been skimmed here and there, and there is an exceedingly large field for an enthusiastic worker."

Entomological Literature.

COMPILED BY E. T. CRESSON, JR., AND J. A. G. REHN.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), excluding Arachnida and Myriapoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded. The numbers in **Heavy-Faced Type** refer to the journals, as numbered in the following list, in which the papers are published, and are all dated the current year unless otherwise noted. This (*) following a record, denotes that the paper in question contains description of a new North American form.

For record of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington.

☞All publications noted in the following list are dated 1910 unless otherwise noted.

2—Transactions, American Entomological Society, Philadelphia. **3**—The American Naturalist. **4**—The Canadian Entomologist. **7**—U. S. Department of Agriculture, Bureau of Entomology. **9**—The Entomologist, London. **11**—Annals and Magazine of Natural History, London. **14**—Proceedings, Zoological Society of London. **35**—Annales, Societe Entomologique de Belgique. **38**—Wiener Entomologische Zeitung. **40**—Societas Entomologica, Zurich. **47**—The Zoologist, London. **55**—Le Naturaliste, Paris. **86**—Annales, Societe Entomologique de France, Paris. **89**—Zoologische Jahrbucher, Jena. **92**—Zeitschrift fur wissenschaftliche Insektenbiologie, Berlin. **97**—Zeitschrift fur wissenchaftliche Zoologie, Leipzig. **123**—Bulletin, Wisconsin Natural History Society, Milwaukee. **128**—Proceedings, Linnean Society of New South Wales, Sidney. **141**

—Proceedings, Indiana Academy of Sciences, Indianapolis. **142**—Report, Michigan Academy of Sciences, Lansing. **181**—Guide to Nature, Sound Beach, Conn. **186**—Journal of Economic Biology, London. **198**—Biological Bulletin, Marine Biological Laboratory, Woods Hole, Mass. **218**—Mikrokosmos. Zeitschrift fur die praktische Betatigung aller Naturfreunde, Stuttgart. **239**—Annales, Biologie Lacustre, Brussels. **297**—Bulletin, Indiana Department of Geology and Natural Resources, Indianapolis. **298**—Ofversigt, Finska Vetenskaps-Societetens Forhandlingar. A. Mathematik och Naturvetenskaper, Helsingfors. **299**—Mitteilungen der Naturhistorischen Gesellschaft zu Hanover. **300**—Ontario Natural Science Bulletin, Guelph.

GENERAL SUBJECT. Blatchley, W. S.—The life zones of Indiana as illustrated by the distribution of Orthoptera and Coleoptera within the state, **141,** 1908, 185-191. **Brocher, F.**—Les phenomenes capillaires. Leur importance dans la biologie aquatique, **239,** iv, 89-138. Observations biologiques sur quelques Dipteres et Hymenopteres dits "aquatiques," **239,** iv, 170-186. **Burrill, A. C.**—Pine-cone willow gall abundant. Grape-vine gilbert gall, **123,** vii, 130-131. **Doane, R. W.**—Insects and disease. A popular account of the way in which insects may spread or cause some of our common diseases, 227 pp. 1910. Henry Holt & Co. **Girault, A. A.**—Notes on variation in duration of similar periods of embryonic development; its bearing on the theory of effective temperatures, **123,** viii, 10-20. **Smith, J. B.**—The insects of New Jersey (list). Annual report of the New Jersey State Museum for 1909. 880 pp.

APTERA & NEUROPTERA. Bugnion, E.—Observations relatives a l'industrie des termites, **86,** lxxix, 129-144. **Calvert, P. P.**—Zoological researches in Costa Rica. Old Penn. Weekly review of the University of Pennsylvania, Vol. ix, pp. 165-170. **Dampf, A.**—Mesopsylla eructa n. g. n. sp., ein neuer Floh von der Springmaus nebst Beitragen zur Kenntnis der gattung Palaeopsylla, **89,** Suppl. 12, 609-664. **Fahrenholz, H.**—Neue Lause. (II Die Larven von Pediculus capitis, **299** D, 1st Jahrb., 57-75, 1910. **Friedenthal, H.**—Haarparasiten und Haarkrankheiten des Menschen, **218,** viii, 156-163. **Muttkowski, R. A.**—New records of Wisconsin Dragonflies, **123,** viii, 53-59. **Tillyard, R. J.**—Studies in the life-histories of Australian Odonata, **128,** xxxiv, 697-708, 1909.

ORTHOPTERA. Schleip, W.—Der Farbenwechsel von Dixippus morosus, **89,** xxx, 45-132. **Walker, E. M.**—The Orthoptera of Western Canada, **4,** xlii, 333-340, 351-356 (*).

HEMIPTERA. Cockerell, T. D. A.—A new Aleyrodes on Am-

brosia, **4,** xlii, 370-371 (*). **Herrick, G. W.**—Tragionia celtis n. sp. **4,** xlii, 373-374. **Pierantoni, U.**—Ueber den Ursprung und die Struktur des eiformigen Korpers von Dactylopius citri und des grunen Korpers von Aphis brassicae, **40,** xxv, 61-62. **Poppius, B.**—Neue Ceratocombiden, **298,** lii, No. 1, 1-14 (*).

LEPIDOPTERA. Barnes & McDunnough.—A new Thecla from Texas, **4,** xlii, 365-366 (*). **Coolidge, K. R.**—Notes on the genus Thecla, **4,** xlii, 374-375. **Cosens, A.**—Lepidopterous galls on species of Solidago, **4,** xlii, 371-372. **Dampf, A.**—Zur Kenntnis gehausetragender Lepidopterenlarven, **89,** Suppl. 12, 512-608. **Forbes, W. T. M.**—Larva of Ptochoryctis tsugensis, **4,** xlii, 364. **Frohawk, F. W.**—The number of larval stages of Lycaena acis, **9,** xliii, 305-306. **Gibson, A.**—A list of butterflies taken at Toronto Ontario, **300,** 1910, No. 6, 35-44. **Kutschera, G.**—Die Larchentriebmotte, **218,** viii, 163-165. **Mitterberger, K.**—Zur Kenntnis der ersten Stande von Cacoecia histrionama, **92,** vi, 353-354. **Pierce, F. N.**—Value of genitalia, **9,** xliii, 304. **Prout, L. B.**—New Neotropical Geometriedae (continued), **11,** vi, 232-247, 316-333, 432-440, 508-526. **Reiff, W.**—Ueber das Zirpen der Raupen, **123,** vii, 109-110. **Richter, V. K.**—Beschreibung der Eier von Pieris rapae, Agrotis forcipula, und Mamestra reticulata, **92,** vi, 352-353. **Rowland-Brown, H.**—A note on the new classification of certain Hesperid butterflies, **9,** xliii, 306-309. **Russell, H. M.**—The pecan cigar case-bearer (Coleophora caryaefoliella), **7,** Bull. No. 64, pt. x. **Smith, J. B.**—New species of Noctuidae for 1910, No. 2, **2,** xxxvi, 251-266. **Thierry-Mieg, P.**—Descriptions de lepidopteres nouveaux, **35,** liv, 384-390. Descriptions de lepidopteres nouveaux, **55,** xxxii, 235, 247-248. **Wolley Dod, F. H.**—A new Autographa from the Alberta rockies, **4,** xlii, 349-350 (*).

DIPTERA. Brues, C. T.—Some further remarks on the systematic affinities of the Phoridae, with descriptions of new species, **123,** vii, 102-108 (*). **Coquillett, D. W.**—Corrections to my paper on the type-species of the No. American genera of Diptera, **4,** xlii, 375-378. **Graenicher, S.**—A preliminary list of the flies of Wisconsin belonging to the families Bombyliidae, Syrphidae and Conopidae, **123,** viii, 32-44. **Reeves, C. D.**—A remedy for the Black-fly pest in certain streams of the southern peninsula of Michigan, **142,** xii, 77-78. **Speiser, P.**—Beitrage zur Kenntnis der Dipteren-Gruppe Heleinae, **89,** Suppl. 12, 735-754.

COLEOPTERA. Blatchley, W. S.—The Coleoptera or beetles of Indiana, **297,** i, 1386 pp. (*). **Bowe, M.**—Beetles and how to collect them (popular account), **181,** iii, 289-293. **Buhk, F.**—Stridulationsapparat bei Spercheus emarginatus, **92,** vi, 342-346. **Gebien,**

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HYMENOPTERA. Brues, C. T.—Notes and descriptions of N. A. parasitic Hymenoptera VIII, **123,** viii, 45-52 (*). A preliminary list of the Proctotrypoid Hymenoptera of Washington with descriptions of new species, **123,** vii, 111-122 (*). **Butterfield, E. P.**—Bees killed by wasps (note), **47,** xiv, 396. **Cockerell, T. D. A.**—Some insects from Steamboat Springs, Colorado, II., **4,** xlii, 366-370 (*). **Ferton, C.**—Notes detachees sur l'instinct des hymenopteres melliferes, **86,** lxxix, 145-178. **Lovell, J. H.**—The color sense of the honey-bee: can bees distinguish colors? **3.** xliv, 673-692. **Managan, J.**—Some remarks on the parasites of the large larch sawfly Nematus erichsonii, **186,** v, 92-94. **O'Brien, R. A.**—Remarks on the habits of the Green Tree-Ant of Australia (note), **14,** 1910, 669-670. **Schrottky, C.**—Neue sudamerikanische Arten der Bienengattung Anthidium, **38,** xxix, 267-271. **Turner, C. H.**—Experiments on color-vision of the honey bee, **198,** xix, 257-279.

Insects and Disease: A popular account of the way in which insects may spread or cause some of our common diseases, with many original illustrations from photographs, by R. W. Doane, A. B., Assistant Professor of Entomology Leland Stanford Junior University. Henry Holt and Company, New York, 1910. Price $1.50, net; by mail $1.62. The wonderful growth of the study of insect-carried disease has necessitated a book of this character. While the literature of the subject is very large it is scattered through many publications in this country and abroad and not very accessible to the lay student. This work epitomizes the subject in a clear manner and affords the interested reader a general knowledge of this important subject. The illustrations are numerous and well chosen and there is a selected bibliography appended. It is not so many years ago when the writer of this notice made the remark that house-flies carry typhoid fever, to one of the now prominent students of the subject, who said he did not believe such a

thing possible. The same thing happened in regard to malaria. The subject of the insect transmission of disease is not a new subject, but its great importance has only been realized in the last ten years. The time is rapidly approaching, when the necessity will arise for books on this important subject relating to one insect, for instance, the house-fly. We are glad to see the present work as we believe it will occupy a useful place. H. S.

THE COLEOPTERA OR BEETLES OF INDIANA, BY W. S. BLATCHLEY.—This work is characterized by the author as an illustrated descriptive catalogue of the beetles of his State, exclusive of the Rhynchophora. It represents an enormous amount of labor, which, however, seems fully justified by the results. Its chief importance lies in the fact that it is the only American work yet published which will serve to give, within a single volume, really efficient aid in identifying the Coleopterous fauna of a large district. It is a difficult matter to get a publisher for so extensive a treatise unless it deals with a subject much more popular than this one.

Mr. Blatchley has followed, in the main, the "Classification" of Le Conte and Horn, relying for specific keys chiefly upon the papers of monographers whose works are cited in the proper places. The result, therefore, is a very orthodox production in which the beginner will find little in conflict with views already published. Following the keys, more extended descriptions of each species are given, with notes upon rarity, modes of occurrence and dates. The whole forms a book of nearly 1400 pages illustrated by 590 figures. In it are treated 3312 species, 2512 of which are known to occur in Indiana and 79 are now described as new to science.

The typography is good, so are the figures which are largely original and will be a most welcome addition to the stock available for future writers. The book is just what has been needed by students of this order in the central States, and will certainly be much sought after by public and private libraries. It is handled by the Nature Publishing Co., of Indianapolis, although it was brought out by Mr. Blatchley as Bulletin I of the Indiana Department of Zoology and Natural Resources, in his capacity of State Geologist.—H. F. WICKHAM.

Doings of Societies.

ENTOMOLOGICAL SECTION, ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.

Meeting of November 17, 1910. Mr. H. W. Wenzel, Vice-Director, presided. Ten persons were present.

Mr. Rehn made some remarks on the trip made by Mr.

Morgan Hebard and himself during the past summer in search of Orthoptera. Portions of Nebraska, Wyoming, Colorado, Idaho, Oregon, Washington, California, Nevada, Arizona, New Mexico and Texas were visited and extensive collections made. The object of the expedition was to extend the reconnaissance work done in previous years by the same individuals, paying particular attention to certain previously unstudied or poorly studied regions such as the Snake River desert, Idaho; eastern Oregon; Mt. Hood, Oregon; the Walker Lake region, Nevada; Ventura Mts., California; the Gila desert, Arizona, and the Baboquivari Mountains and surrounding valleys, Arizona. The returns exceeded the great expectations and hundreds of field notes were made, bearing on the distribution and plant relation of many species. A number of new species are known to be included in the collection. Numerous photographs illustrating the types of country visited were exhibited.

Mr. H. S. Harbeck was elected an Associate of the Section.

HENRY SKINNER, M.D., *Recorder.*

FELDMAN COLLECTING SOCIAL.

A regular meeting was held October 19th, 1910, at 1523 S. 13th Street, Philadelphia. Thirteen members were present; Messrs. Dickerson, of New Brunswick, N. J., and Viereck and Crawford, of Washington, D. C., visitors.

President Harbeck in the chair.

Dr. Skinner said he had noticed the scarcity of insects, even of the common species, on his recent trip to Europe. He described the various collections in the British Museum and gave an account of the meetings of the World's Entomological Congress in Brussels.

Mr. Dickerson said the Catalpa sphinx seems to be traveling in a northeasterly direction in New Jersey, he having seen specimens from Springfield. He described the parasites' attack on the larvae.

Mr. Daecke exhibited a male *Dytiscus harrisi* Kirby (Col.) collected at Highspire, Pa., June 17, 1910, by W. R. Fischer, which seems to be the only Pennsylvania record; also two

specimens of *Calobata geometra* Desv. (Dip.) collected by himself at Eberlys Mill, Pa., July 12, 1910, and July 14, 1910. This latter species was first turned up in Pennsylvania by Mr. Champlain. It is a Texas species and is gradually working its way north. Mr. Daecke also said he was in the vicinity of the place where he had found *Lema sexpunctata* Oliv. (Col.) on the Virginia day flower last year, and upon examining them found the same species this year.

Mr. Laurent described a yard in Wildwood Crest which contains several flower beds and covers about half an acre. He said that on October 6th, this year, this bed contained about 5000 specimens of *Danais plexippus* Linn. (Lep.) evidently gathering to migrate, because when he visited the same place next day none were to be found.

There then followed a general discussion by all present on the common house fly.

Mr. C. T. Greene exhibited and recorded the following Diptera collected by himself: *Phortica alboguttata* Wahlberg, from Lehigh Gap, July 12, 1906, a European species which Osten Sacken's Catalog says occurs in N. A. on authority of "Loew in litt"; *Phorantha calyptrata* Coq. Castle Rock, Pa., September 26, 1909, listed from District of Columbia, Virginia and Kentucky; *Alophora nitida* Coq., Pemberton, N. J., July 11, 1909, listed from Potomac Creek, Virginia and Canada.

Dr. Skinner said he had been elected president of the section on Nomenclature at the Entomological Congress, in which all the discussions were in English, German, French and Spanish. He said it was the practice in many parts of Europe to label all the specimens which are under the eye at the time of description "type," but after much argument, pro and con, it was finally decided upon that a rule be passed to have only a single type. Adjourned to the annex.

GEO. M. GREENE, *Secretary*.

ERRATA IN VOLUME XXI.

Page 467, line six from the bottom, for *foeresteri* read *foersteri*.
Page 469, for *Pterygophorus civetus* read *P. cinctus*.
Page 470, seventh line from bottom, for *discordal* read *discoidal*.

EXCHANGES.

Not Exceeding Three Lines Free to Subscribers.

☞ These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

Wanted—Proc. Ent. Soc. Phila., Vol. ii; Trans. Am. Ent. Soc., Vol. iii; Experiment Station Record, Vol. iii, No. 4, and Vol. iv, No. 5; Bull. of Brooklyn Ent. Soc., Vol. iii. Will pay cash or exchange.—R. W. Harned, Agricultural College, Mississippi.

Wanted—Riley's 9th Mo. Report. Have Riley's 4th and the Supplement to 9th and index to the 9th Mo. Reports for sale.—E. O. G. Kelly, Wellington, Kansas.

Polyphylla variolosa offered in exchange—Have you fine specimens of this rare North American beetle in your collection? If not, send me a list of not over twenty rare species that you have to offer in exchange. My supply of specimens is limited.—Philip Laurent, 31 East Mt. Airy Ave., Philadelphia, Penna.

Coleoptera exchanged for native or exotic specimens new to my collection List on application.—Emil Liljeblad, 1018 Roscoe St., Chicago, Ill.

Wanted—All kinds of pupae and cocoons either for cash or good exchange.—Herman H. Brehme, 74 13th Ave., Newark, N. J.

Have for Exchange—Eggs of *Catocala innubens, cara, ilia, neogama, vidua, piatrix, scintillans* and pupae of *modesta* and other hawks and pupae of *ajax, cresphontes, luna* and others. Wish eggs or imagoes of *marmorata*, etc.—R. R. Rowley, Louisiana, Mo.

Imported Indian Cocoons of *atlas, mylitta, roylei, ricini, trifenestrata, selene, leto* and others, and hybrid *selene-luna* in papers for *regalis, versicolora* and other live native pupæ.—James L. Mitchell, 212 Indiana Trust Building, Indianapolis, Indiana.

North American and exotic Lepidoptera wanted. Will offer North American Coleoptera in exchange.—G. Chagnon, Post Office Box No. 186, Montreal, Canada.

I collect in all orders for cash. Locals only. Unique field. Hand-written price lists for intending buyers, two cents. Specialists served.—A. H. Manee, Southern Pines, N. C.

Diptera—Will give duplicates in exchange for identification —A. J. Weidt. 439 Washington Street, Newark, N J.

Duplicates—Fine *Parnassius* ex. Thian-Shan, Turkestan, including *romanovi, appolonius* and ab. *flavomaculata, Staudingeri, nubilosus, intermedius*, etc.; rare Saturnids in paper as: *Philosamia, ricini, Attacus, Edwardsi, atlas;* var. ex. *java: Argema mimosæ; Actias selene; Anth rea mylitta* and var. *sivalica; Nudaurelia menippe, ringleri, caffraria*, etc., *Cricula andrei* n. sp.; life histories. Cocoons, hybrid *cynthia* x *ricini* (Bengal) and plenty of common species in papers and cocoons. Will take in exchange cocoons or moths of rare Saturnids or Parnassius; particularly want *Calleta, Colombia* cocoons—any Arizona, California or New Mexico species of *Hemileuca* or *Saturnia* —J. Henry Watson, 70 Ashford Road, Withington, Manchester, England.

I have for exchange living pupae of *P. asterias, Sp. achemon, quinquemaculata, sexta, chersis, A. luna, A. myron, A. aurora, E. tilyrus* and *octomaculata*. Want pupae of others not in my collection —Joseph N. Lang, 619 Bunker St, Chicago, Ill.

Lepidoptera—I have for exchange living pupae of *Adelocephala bicolor, Sphinx jamaicensis;* also in papers, *Meganostoma caesonia, Apantesis virgunculа* and *Catocalae*.—James Tykal, 2807 Ridgeway Avenue, Chicago, Ill.

Micro-Coleoptera—Isaac B. Ericson, Molndal, Sweden, is working up the Micro-Coleoptera of the world and desires to exchange specimens.—G. A. Akerlind, 664 Monadnock Block, Chicago, Illinois, will act as intermediary if desired.

Wanted—In the spring or early summer, four live female *Anosia plexippus* to be posted to England, liberal prices paid.—Kindly apply to Hon. N. Charles Rothschild, Arundel House, Kensington Palace Gardens, London, W.

Will purchase Cicindelae in series of the more common forms from all over the United States. Dates and localities necessary.—E. D. Harris, 280 Broadway, New York.

Stockhausen, Printer, 53-55 N. 7th Street, Philadelphia.